IN THE CLAIMS:

This listing is a listing of claims as they currently stand.

1. (Currently Amended) A barrier structure for copper metallization, comprising:

a dielectric pattern ~~formed~~ disposed directly on ~~a~~ an upper surface of a substrate;

a first Ru layer ~~formed~~ disposed directly on an upper surface of the dielectric pattern;

an oxide film ~~formed by oxidizing an upper part~~ disposed directly on an upper surface of the first Ru layer;

a second Ru layer ~~formed in contact with~~ disposed directly on an upper surface of the oxide film; and

a Cu layer ~~formed~~ disposed directly on an upper surface of the second Ru layer.

2. (Previously Presented) The barrier structure of claim 1, wherein the substrate is a silicon substrate.

3. (Previously Presented) The barrier structure of claim 1, wherein the first Ru layer and the second Ru layer are formed by using a sputtering or CVD (chemical vapor deposition) and the first Ru layer has a thickness in a range from about 80 angstroms to about 120 angstroms.

4. (Currently Amended) The barrier structure of claim 1, wherein the oxide film is made of RuxOy formed by a plasma treatment using ~~N2O~~ N_2O or ~~O2~~ O_2.

5. (Previously Presented) The barrier structure of claim 4, wherein the thickness of the oxide film is about 250 angstroms, which is obtained by oxidizing an upper part of the first Ru layer.

6. (Previously Presented) The barrier structure of claim 4, wherein the ratio of x:y = 1:2.

7. (Withdrawn) A method for fabricating a barrier structure for copper metallization, comprising the steps of:

forming a dielectric pattern on a surface of a substrate;

forming a first Ru layer on the dielectric pattern;
forming an oxide film in a surface region of the first Ru layer;
forming a second Ru layer in contact with the oxide film; and
forming a Cu layer on the second Ru layer.

8. (Withdrawn) The method of claim 7, wherein the substrate is a silicon substrate.

9. (Withdrawn) The method of claim 7, wherein the first Ru layer and the second Ru layer are formed by using a sputtering or CVD(chemical vapor deposition) and has a thickness in a range from about 80 angstroms to about 120 angstroms.

10. (Withdrawn) The method of claim 7, wherein the oxide film is made of RuxOy formed by a plasma treatment using N_2O or O_2.

11. (Withdrawn) The method of claim 10, wherein the thickness of the oxide film is about 250 angstroms, which is obtained by oxidizing an upper part of the first Ru layer.

12. (Withdrawn) The method of claim 10, wherein the ratio of x:y = 1:2.

13. (Previously Presented) The barrier structure of claim 1, wherein the first Ru layer, the oxide film and the second Ru layer collectively form a conductive barrier structure for the Cu layer.

14. (Withdrawn) The barrier structure of claim 7, wherein the first Ru layer, the oxide film and the second Ru layer collectively form a conductive barrier structure for the Cu layer.